Old World Bollworm & Tomato Commodity Survey

CAPS & Farm Bill 2020 Edition

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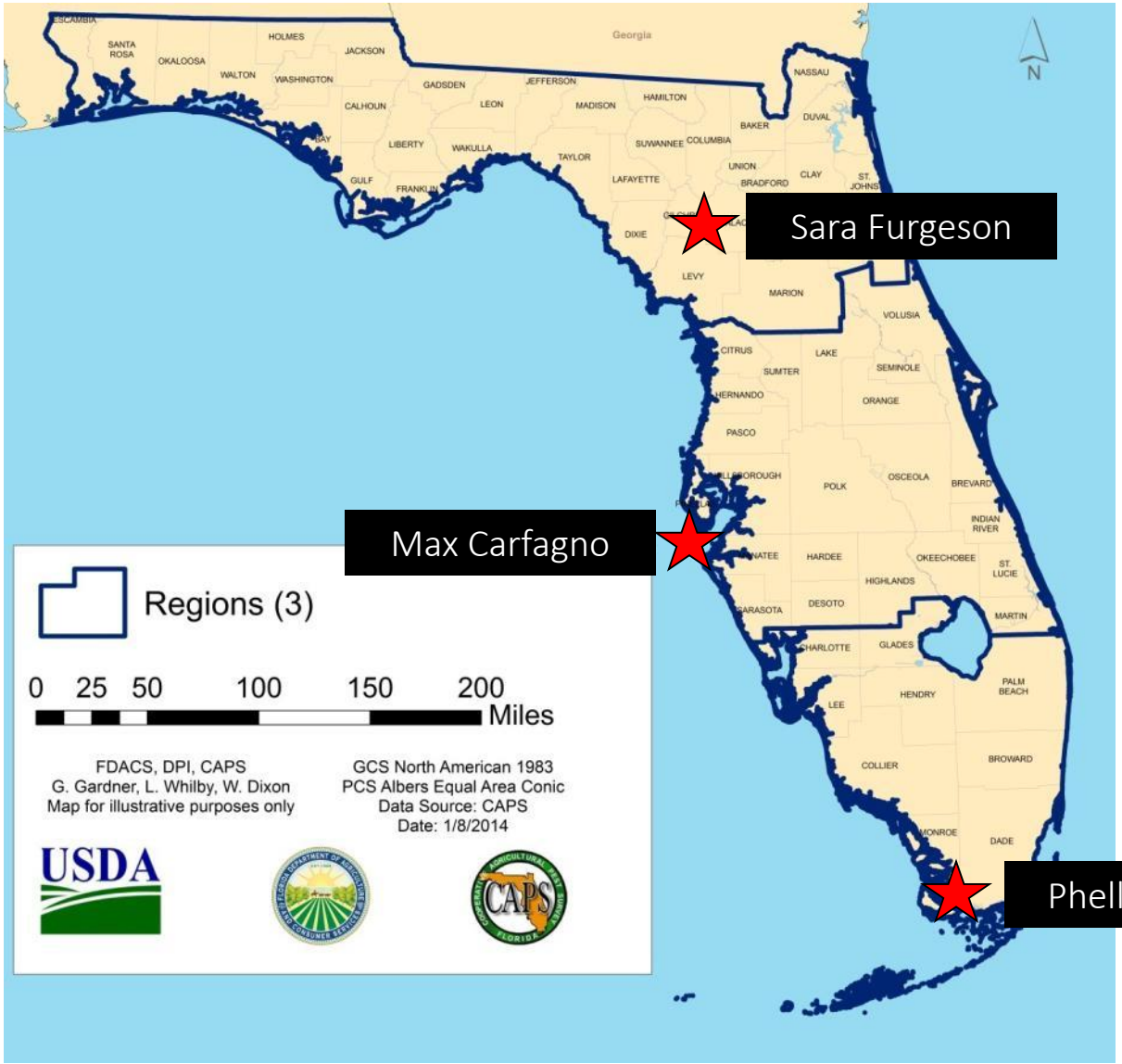
Tomato Commodity in Florida: Facts and Figures

- Tomatoes are the 3rd most popular ‘vegetable’ in the US after potatoes and lettuce
- Florida ranks #1 in fresh tomatoes at 70% of the United States yield, ships over 1 billion pounds yearly
- Over 31,000 acres utilized for tomatoes with just as many pickers employed for harvest
- Total crop value each year exceeds $619 million

TCS Regions and Surveyors

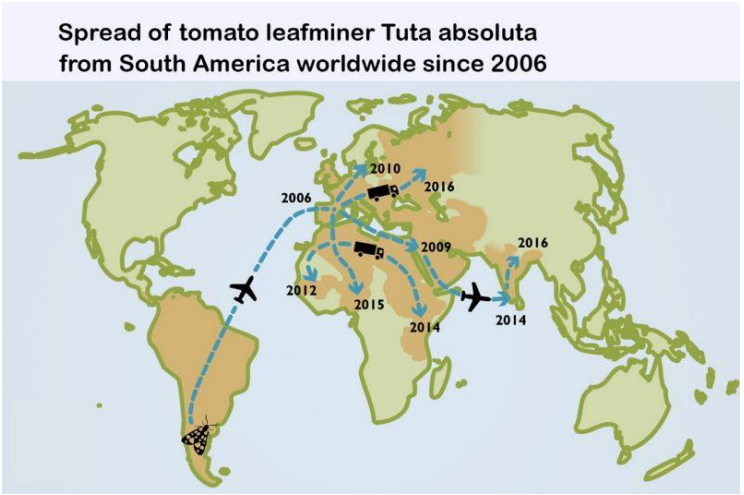


Survey Sites

- Commercial fields
- Community gardens
- Public and private research fields
- Seed and seedling producers
- Tomato packing houses
- University arboretums
- Markets and roadside vendors
- Agricultural refuse piles

Invasive Targets

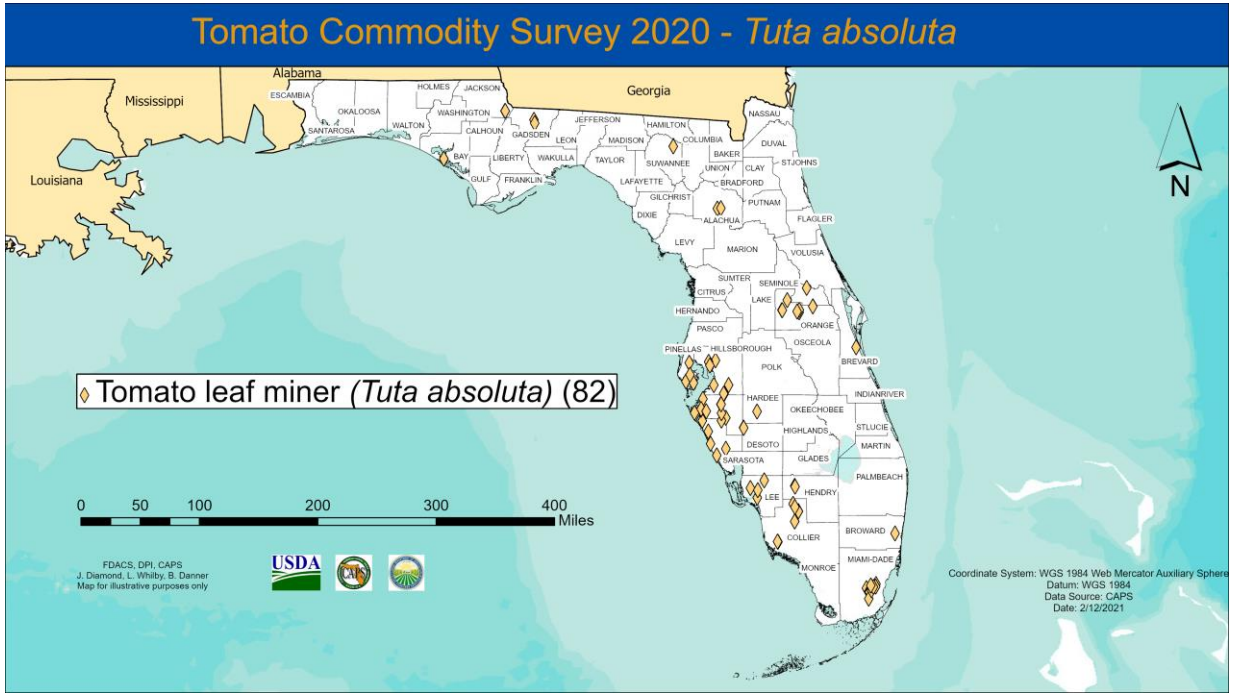
- *Tuta absoluta*
- *Chrysodeixis chalcites*
- *Neoleucinodes elegantalis*
- *Spodoptera litura*
- *Helicoverpa armigera*
- *Thaumatotibia leucotreta*
- *Bactericera cockerelli*

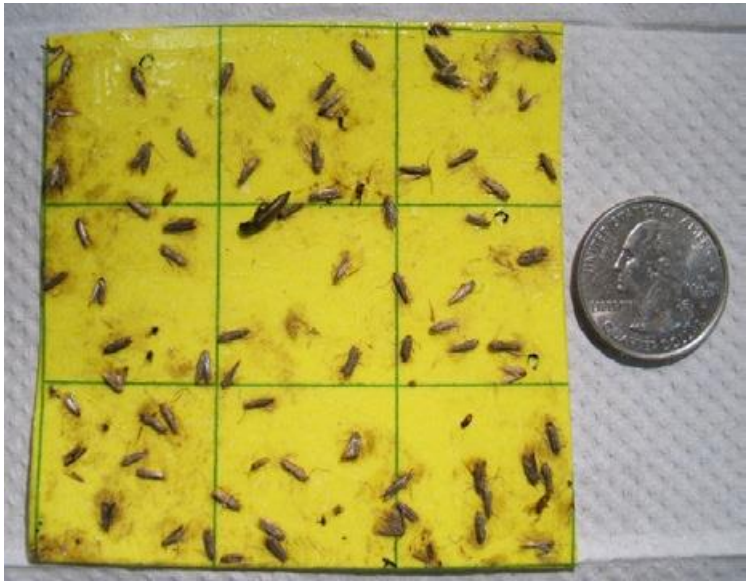


Tuta absoluta

Tomato Leafminer

- Named for tunneling behavior through leaves as larvae
- Species of Damsel Bug considered for biological control
- Traps most effective when placed near composting or waste disposal
- Small size makes identification difficult in the field
- 2 notable interceptions in Lebanon and India from baggage bound for US, from AQAS Database





Tuta absoluta

Not detected

Chrysodeixis chalcites

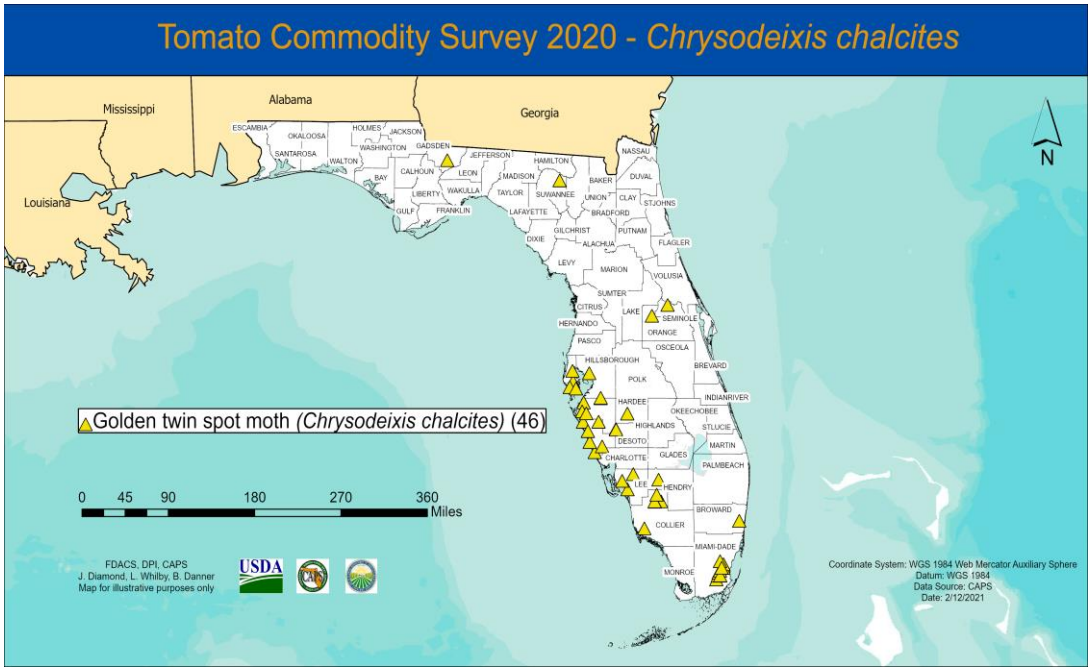
Golden Twin Spot Moth

- Native across Northern region of Africa, established in Europe and the Middle East, has not gained foothold in Western Hemisphere
- Wide range of hosts include cotton, peanuts, cabbage, beans, peppers, cauliflower, banana, coffee, and tomato
- Will skeletonize entire leaves singlehandedly, but does not damage the fruit or vegetable body - *Chrysodeixis includens* similar
- Nearly 400 interceptions since 1984

Neoleucinodes elegantalis

Tomato Fruit Borer

- Larval development happens entirely within the fruit, making pest treatment difficult
- Very distinct form and wing coloration makes identification easy
- Only species of its genus reported to occur in both warm and cold climates
- Nearly 1200 interceptions since 1984



Chrysodeixis chalcites

Neoleucinodes elegantalis

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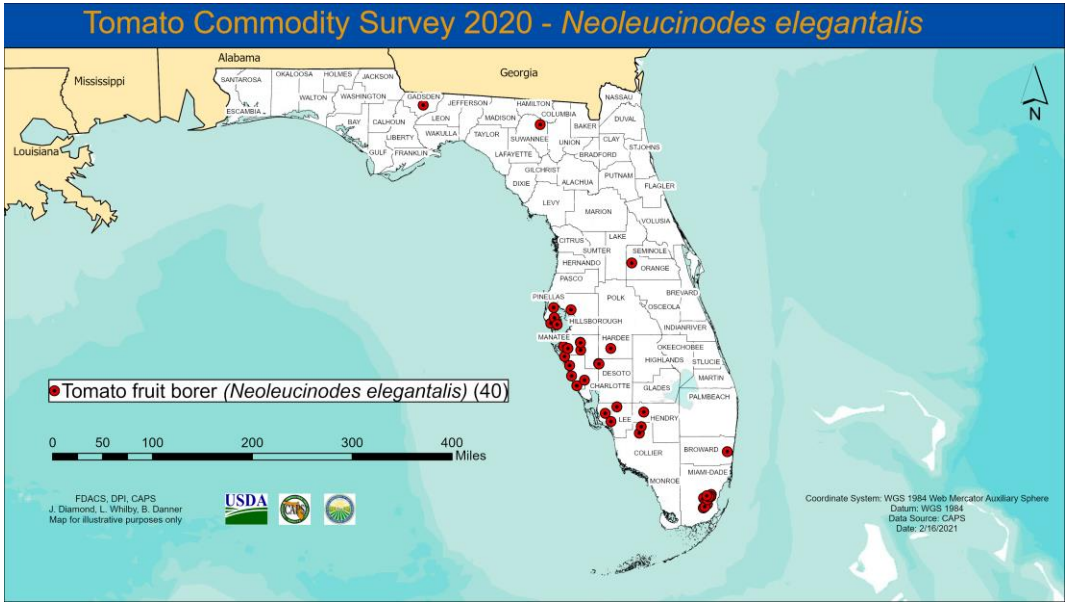


Spodoptera litura

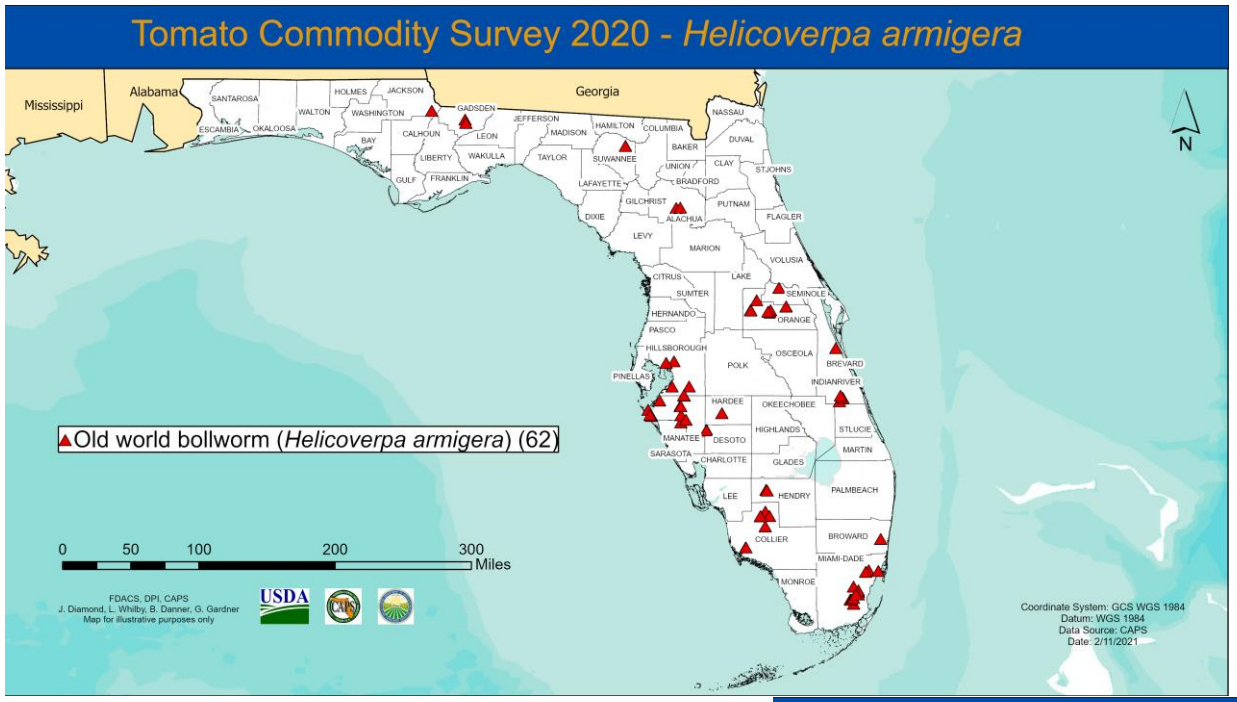
Cotton Cutworm

- Native to a wide swath of Asia, from Afghanistan to Thailand
- Attacks leaf stems in groups, causing defoliation at the shoots
- Similar to species *Spodoptera androgea, frugiperda, eridania,* and *exigua,* close inspection required
- Over 1800 interceptions since 1985, 2 US detections in 2007 and 2014

Helicoverpa armigera

Old World Bollworm

- Targets the fruiting/seeding tips of cotton, preventing further growth
- Established presence in Caribbean countries is cause for concern
- Similar in appearance and physiology to the native *Helicoverpa zea*, requires dissection
- Over 4000 interceptions since 1985 across 150 countries, 1 in Manatee



Spodoptera litura
Helicoverpa armigera

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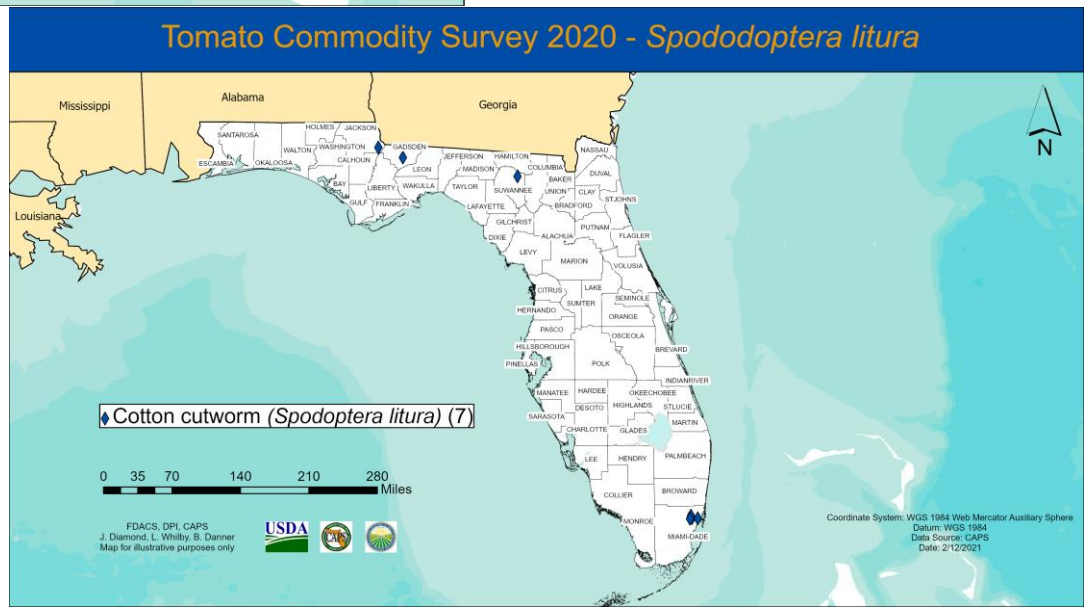


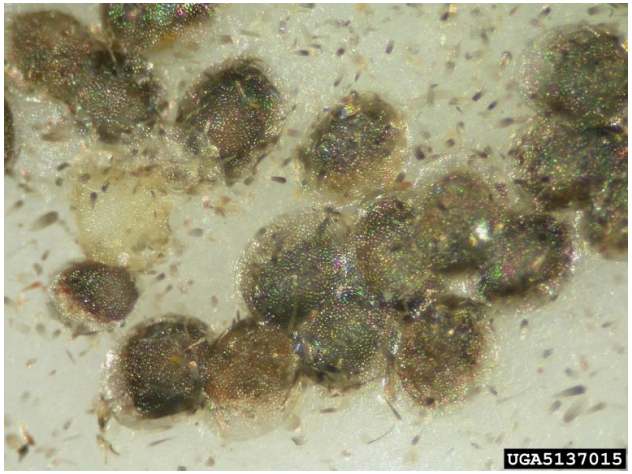
Thaumatotibia leucotreta

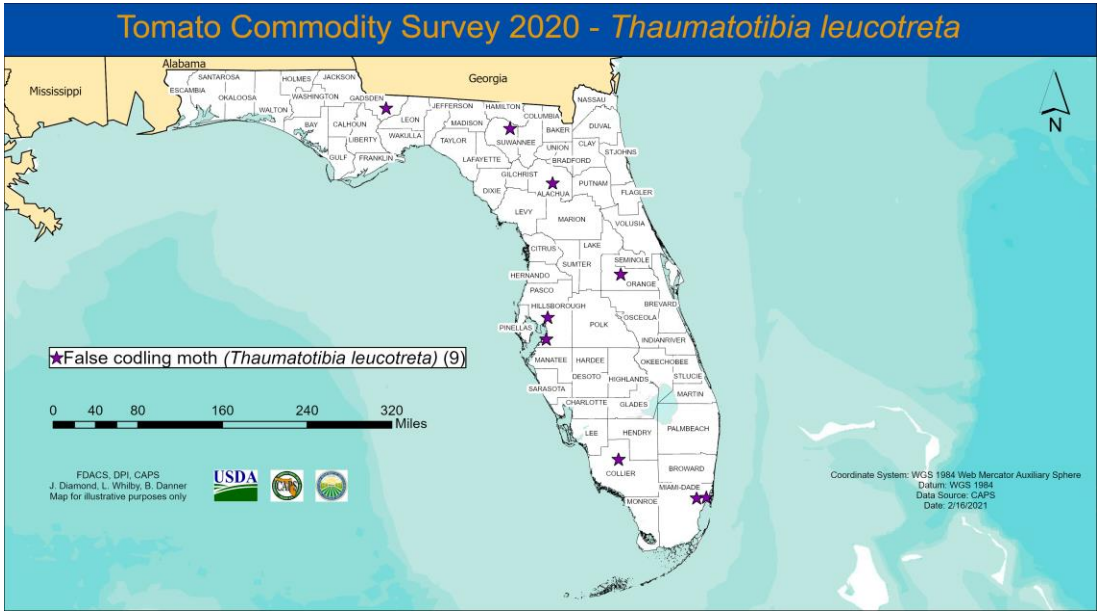
False Codling Moth

- Largely contained within Africa, though occasional outlier sightings occur; first detection in US was 2008 in California
- Intercepted via produce sent to Europe
- Attacks fruits and vegetables directly, piercing surface and residing in core
- Miniscule and translucent eggs leave little indication of infestation

Thaumatotibia leucotreta

Not detected

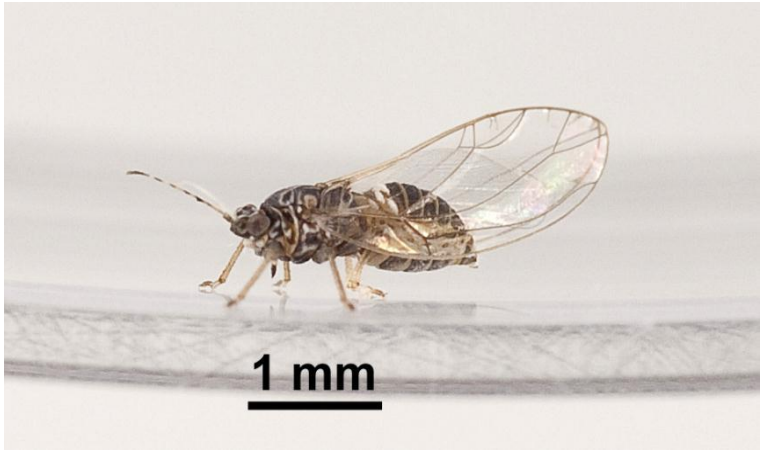




Bactericera cockerelli

Potato Psyllid

- Native to American southwest, has begun moving east, introduced to Australia
- Causes damage by feeding on phloem, much like aphids and thrips
- Named after favorite host, but will also target tomato
- Known to spread ‘Psyllid Yellows’ and ‘Zebra Chip’ among various bacterium
- Unique method of capture



Bactericera cockerelli

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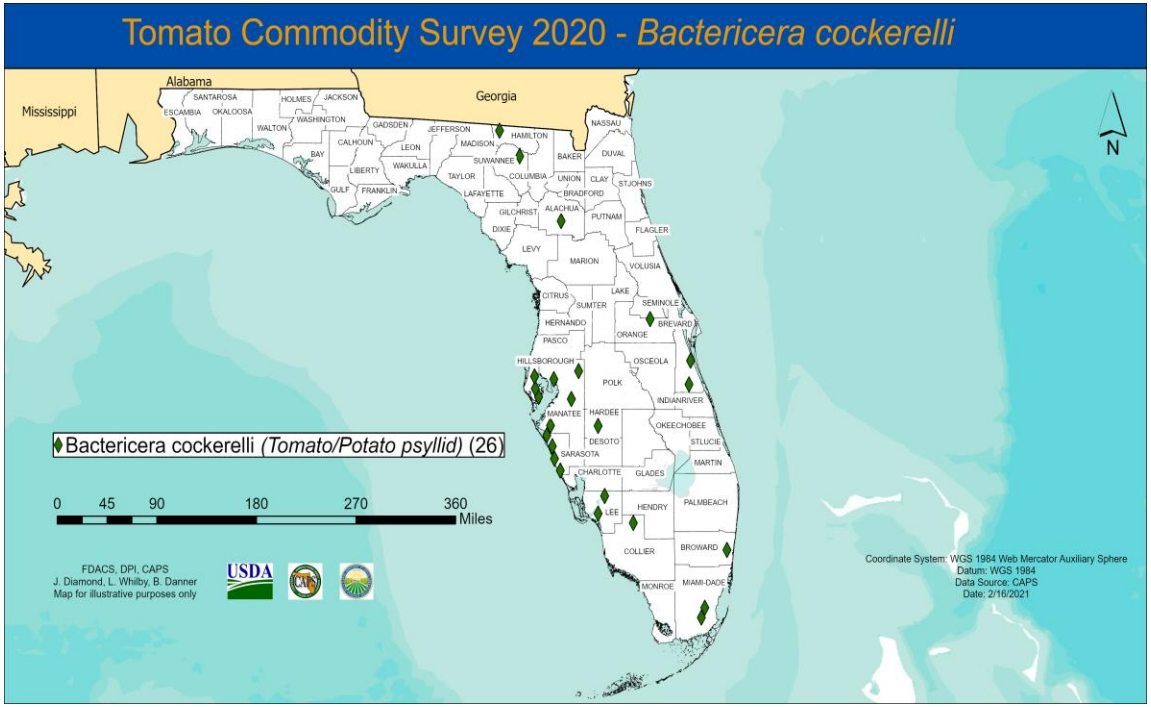
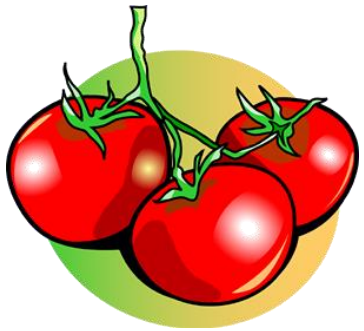


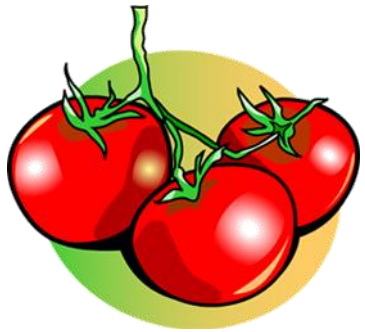
2020 Survey Results

Target Species	Specimens Collected (Last Year)
Helicoverpa armigera	1374 (602)
Tuta absoluta	84 (15)
Chrysodeixis chalcites	533 (272)
Spodoptera litura	4 (62)
Neoleucinodes elegantalis	14 (15)
Thaumatotibia leucotreta	34 (179)
Bactericera cockerelli	145 (N/A)



2,188 Specimens collected; 0 Targets found

Records	Info
1 New Hemisphere Record in 3D Printed Trap	*Trichosiphonaphis Polygonifoliae* – UF
9 Other County Records from 3D Printed Trap	Various bycatch, shows promise of new traps



ToBRFV Visual Survey

Tomato Brown Rugose Virus

- Initially found in Israel in 2014, spread to EU
- Detected but isolated once in Naples, FL
- Known to spread via ‘mechanical’ means
- Tested via samples made in the field

255 inspections and 36 samples taken in 2020

No positive specimens

Future Changes

- Adding *Autographa gamma*
  - Common name ‘Silver Y’
  - Named for distinct Y-shaped mark on its forewings
  - Imported from Europe via cut flower industry
- Removing *Chrysodeixis chalcites*

Thanks for listening!

Special thanks to Cyndi Moncrief, Doug Restom Gaskill, Sara Furgeson, Julieta Brambila and Justice Diamond for the data and maps!